

Part IV: Division of Labour and Manufacture

CHAPTER FOURTEEN

Division of Labour and Manufacture

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SECTION 1

TWO-FOLD ORIGIN OF MANUFACTURE

That co-operation which is based on division of labour, assumes its typical form in manufacture, and is the prevalent characteristic form of the capitalist process of production throughout the manufacturing period properly so called. That period, roughly speaking, extends from the middle of the 16th to the last third of the 18th century.

Manufacture takes its rise in two ways:

(1.) By the assemblage, in one workshop under the control of a single capitalist, of labourers belonging to various independent handicrafts, but through whose hands a given article must pass on its way to completion. A carriage, for example, was formerly the product of the labour of a great number of independent artificers, such as wheelwrights, harness-makers, tailors, locksmiths, upholsterers, turners, fringe-makers, glaziers, painters, polishers, gilders, &c. In the manufacture of carriages, however, all these different artificers are assembled in one building where they work into one another's hands. It is true that a carriage cannot be gilt before it has been made. But if a number of carriages are being made simultaneously, some may be in the hands of the gilders while others are going through an earlier process. So far, we are still in the domain of simple co-operation, which finds its materials ready to hand in the shape of men and things. But very soon an important change takes place. The tailor, the locksmith, and the other

artificers, being now exclusively occupied in carriage-making, each gradually loses, through want of practice, the ability to carry on, to its full extent, his old handicraft. But, on the other hand, his activity now confined in one groove, assumes the form best adapted to the narrowed sphere of action. At first, carriage manufacture is a combination of various independent handicrafts. By degrees, it becomes the splitting up of carriage-making into its various detail processes, each of which crystallises into the exclusive function of a particular workman, the manufacture, as a whole, being carried on by the men in conjunction. In the same way, cloth manufacture, as also a whole series of other manufactures, arose by combining different handicrafts together under the control of a single capitalist. [1]

(2.) Manufacture also arises in a way exactly the reverse of this namely, by one capitalist employing simultaneously in one workshop a number of artificers, who all do the same, or the same kind of work, such as making paper, type, or needles. This is co-operation in its most elementary form. Each of these artificers (with the help, perhaps, of one or two apprentices), makes the entire commodity, and he consequently performs in succession all the operations necessary for its production. He still works in his old handicraft-like way. But very soon external circumstances cause a different use to be made of the concentration of the workmen on one spot, and of the simultaneousness of their work. An increased quantity of the article has perhaps to be delivered within a given time. The work is therefore re-distributed. Instead of each man being allowed to perform all the various operations in succession, these operations are changed into disconnected, isolated ones, carried on side by side; each is assigned to a different artificer, and the whole of them together are performed simultaneously by the co-operating workmen. This accidental repartition gets repeated, develops advantages of its own, and gradually ossifies into a systematic division of labour. The commodity, from being the individual product of an independent artificer, becomes the social product of a union of artificers, each of whom performs one, and only one, of the constituent partial operations. The same operations which, in the case of a papermaker belonging to a German Guild, merged one into the other as the successive acts of one artificer, became in the Dutch paper manufacture so many partial operations carried on side by side by numerous co-operating labourers. The needlemaker of the Nuremberg Guild was the cornerstone on which the English needle manufacture was raised. But while in Nuremberg that single artificer performed a series of perhaps 20 operations one after another, in England it was not long before there were 20 needlemakers side by side, each performing one alone of those 20 operations, and in consequence of further experience, each of those 20 operations was again split up, isolated, and made the exclusive function of a separate workman.

The mode in which manufacture arises, its growth out of handicrafts, is therefore two-fold. On the one hand, it arises from the union of various independent

handicrafts, which become stripped of their independence and specialised to such an extent as to be reduced to mere supplementary partial processes in the production of one particular commodity. On the other hand, it arises from the co-operation of artificers of one handicraft; it splits up that particular handicraft into its various detail operations, isolating, and making these operations independent of one another up to the point where each becomes the exclusive function of a particular labourer. On the one hand, therefore, manufacture either introduces diversion of labour into a process of production, or further develops that division; on the other hand, it unites together handicrafts that were formerly separate. But whatever may have been its particular starting-point, its final form is invariably the same a productive mechanism whose parts are human beings.

For a proper understanding of the division of labour in manufacture, it is essential that the following points be firmly grasped. First, the decomposition of a process of production into its various successive steps coincides, here, strictly with the resolution of a handicraft into its successive manual operations. Whether complex or simple, each operation has to be done by hand, retains the character of a handicraft, and is therefore dependent on the strength, skill, quickness, and sureness, of the individual workman in handling his tools. The handicraft continues to be the basis. This narrow technical basis excludes a really scientific analysis of any definite process of industrial production, since it is still a condition that each detail process gone through by the product must be capable of being done by hand and of forming, in its way, a separate handicraft. It is just because handicraft skill continues, in this way, to be the foundation of the process of production, that each workman becomes exclusively assigned to a partial function, and that for the rest of his life, his labour-power is turned into the organ of this detail function.

Secondly, this division of labour is a particular sort of co-operation, and many of its disadvantages spring from the general character of co-operation, and not from this particular form of it.

SECTION 2

THE DETAIL LABOURER AND HIS IMPLEMENTS

If we now go more into detail, it is, in the first place, clear that a labourer who all his life performs one and the same simple operation, converts his whole body into the automatic, specialised implement of that operation. Consequently, he takes less time in doing it, than the artificer who performs a whole series of operations in succession. But the collective labourer, who constitutes the living mechanism of manufacture, is made up solely of such specialised detail labourers. Hence, in comparison with the independent handicraft, more is produced in a given time, or the productive power of labour is increased. [2] Moreover, when once this

fractional work is established as the exclusive function of one person, the methods it employs become perfected. The workman's continued repetition of the same simple act, and the concentration of his attention on it, teach him by experience how to attain the desired effect with the minimum of exertion. But since there are always several generations of labourers living at one time, and working together at the manufacture of a given article, the technical skill, the tricks of the trade thus acquired, become established, and are accumulated and handed down. [3]

Manufacture, in fact, produces the skill of the detail labourer, by reproducing, and systematically driving to an extreme within the workshop, the naturally developed differentiation of trades which it found ready to hand in society at large. On the other hand, the conversion of fractional work into the life-calling of one man, corresponds to the tendency shown by earlier societies, to make trades hereditary; either to petrify them into castes, or whenever definite historical conditions beget in the individual a tendency to vary in a manner incompatible with the nature of castes, to ossify them into guilds. Castes and guilds arise from the action of the same natural law, that regulates the differentiation of plants and animals into species and varieties, except that, when a certain degree of development has been reached, the heredity of castes and the exclusiveness of guilds are ordained as a law of society. [4]

"The muslins of Dacca in fineness, the calicoes and other piece goods of Coromandel in brilliant and durable colours, have never been surpassed. Yet they are produced without capital, machinery, division of labour, or any of those means which give such facilities to the manufacturing interest of Europe. The weaver is merely a detached individual, working a web when ordered of a customer, and with a loom of the rudest construction, consisting sometimes of a few branches or bars of wood, put roughly together. There is even no expedient for rolling up the warp; the loom must therefore be kept stretched to its full length, and becomes so inconveniently large, that it cannot be contained within the hut of the manufacturer, who is therefore compelled to ply his trade in the open air, where it is interrupted by every vicissitude of the weather." [5] It is only the special skill accumulated from generation to generation, and transmitted from father to son, that gives to the Hindu, as it does to the spider, this proficiency. And yet the work of such a Hindu weaver is very complicated, compared with that of a manufacturing labourer.

An artificer, who performs one after another the various fractional operations in the production of a finished article, must at one time change his place, at another his tools. The transition from one operation to another interrupts the flow of his labour, and creates, so to say, gaps in his working-day. These gaps close up so soon as he is tied to one and the same operation all day long; they vanish in proportion as the changes in his work diminish. The resulting increased productive power is

owing either to an increased expenditure of labour-power in a given time i.e., to increased intensity of labour or to a decrease in the amount of labour-power unproductively consumed. The extra expenditure of power, demanded by every transition from rest to motion, is made up for by prolonging the duration of the normal velocity when once acquired. On the other hand, constant labour of one uniform kind disturbs the intensity and flow of a man's animal spirits, which find recreation and delight in mere change of activity.

The productiveness of labour depends not only on the proficiency of the workman, but on the perfection of his tools. Tools of the same kind, such as knives, drills, gimlets, hammers, &c., may be employed in different processes; and the same tool may serve various purposes in a single process. But so soon as the different operations of a labour-process are disconnected the one from the other, and each fractional operation acquires in the hands of the detail labourer a suitable and peculiar form, alterations become necessary in the implements that previously served more than one purpose. The direction taken by this change is determined by the difficulties experienced in consequence of the unchanged form of the implement. Manufacture is characterised by the differentiation of the instruments of labour a differentiation whereby implements of a given sort acquire fixed shapes, adapted to each particular application, and by the specialisation of those instruments, giving to each special implement its full play only in the hands of a specific detail labourer. In Birmingham alone 500 varieties of hammers are produced, and not only is each adapted to one particular process, but several varieties often serve exclusively for the different operations in one and the same process. The manufacturing period simplifies, improves, and multiplies the implements of labour, by adapting them to the exclusively special functions of each detail labourer. [6] It thus creates at the same time one of the material conditions for the existence of machinery, which consists of a combination of simple instruments.

The detail labourer and his implements are the simplest elements of manufacture. Let us now turn to its aspect as a whole.

SECTION 3

THE TWO FUNDAMENTAL FORMS OF MANUFACTURE: HETEROGENEOUS MANUFACTURE, SERIAL MANUFACTURE

The organisation of manufacture has two fundamental forms which, in spite of occasional blending, are essentially different in kind, and, moreover, play very distinct parts in the subsequent transformation of manufacture into modern industry carried on by machinery. This double character arises from the nature of the article produced. This article either results from the mere mechanical fitting

together of partial products made independently, or owes its completed shape to a series of connected processes and manipulations.

A locomotive, for instance, consists of more than 5,000 independent parts. It cannot, however, serve as an example of the first kind of genuine manufacture, for it is a structure produced by modern mechanical industry. But a watch can; and William Petty used it to illustrate the division of labour in manufacture. Formerly the individual work of a Nuremberg artificer, the watch has been transformed into the social product of an immense number of detail labourers, such as mainspring makers, dial makers, spiral spring makers, jewelled hole makers, ruby lever makers, hand makers, case makers, screw makers, gilders, with numerous subdivisions, such as wheel makers (brass and steel separate), pin makers, movement makers, *acheveur de pignon* (fixes the wheels on the axles, polishes the facets, &c.), pivot makers, *planteur de finissage* (puts the wheels and springs in the works), *finisseur de barillet* (cuts teeth in the wheels, makes the holes of the right size, &c.), escapement makers, cylinder makers for cylinder escapements, escapement wheel makers, balance wheel makers, *raquette* makers (apparatus for regulating the watch), the *planteur d'échappement* (escapement maker proper); then the *repasser de barillet* (finishes the box for the spring, &c.), steel polishers, wheel polishers, screw polishers, figure painters, dial enamellers (melt the enamel on the copper), *fabricant de pendants* (makes the ring by which the case is hung), *finisseur de charnière* (puts the brass hinge in the cover, &c.), *faiseur de secret* (puts in the springs that open the case), *graveur*, *ciseleur*, *polisseur de boîte*, &c., &c., and last of all the *repasser*, who fits together the whole watch and hands it over in a going state. Only a few parts of the watch pass through several hands; and all these *membra disjecta* come together for the first time in the hand that binds them into one mechanical whole. This external relation between the finished product, and its various and diverse elements makes it, as well in this case as in the case of all similar finished articles, a matter of chance whether the detail labourers are brought together in one workshop or not. The detail operations may further be carried on like so many independent handicrafts, as they are in the Cantons of Vaud and Neuchâtel; while in Geneva there exist large watch manufactories where the detail labourers directly co-operate under the control of a single capitalist. And even in the latter case the dial, the springs, and the case, are seldom made in the factory itself. To carry on the trade as a manufacture, with concentration of workmen, is, in the watch trade, profitable only under exceptional conditions, because competition is greater between the labourers who desire to work at home, and because the splitting up of the work into a number of heterogeneous processes, permits but little use of the instruments of labour in common, and the capitalist, by scattering the work, saves the outlay on workshops, &c. [7] Nevertheless the position of this detail labourer who, though he works at home,

does so for a capitalist (manufacturer, *établisser*), is very different from that of the independent artificer, who works for his own customers. [8]

The second kind of manufacture, its perfected form, produces articles that go through connected phases of development, through a series of processes step by step, like the wire in the manufacture of needles, which passes through the hands of 72 and sometimes even 92 different detail workmen.

In so far as such a manufacture, when first started, combines scattered handicrafts, it lessens the space by which the various phases of production are separated from each other. The time taken in passing from one stage to another is shortened, so is the labour that effectuates this passage. [9] In comparison with a handicraft, productive power is gained, and this gain is owing to the general co-operative character of manufacture. On the other hand, division of labour, which is the distinguishing principle of manufacture, requires the isolation of the various stages of production and their independence of each other. The establishment and maintenance of a connexion between the isolated functions necessitates the incessant transport of the article from one hand to another, and from one process to another. From the standpoint of modern mechanical industry, this necessity stands forth as a characteristic and costly disadvantage, and one that is immanent in the principle of manufacture. [10]

If we confine our attention to some particular lot of raw materials, of rags, for instance, in paper manufacture, or of wire in needle manufacture, we perceive that it passes in succession through a series of stages in the hands of the various detail workmen until completion. On the other hand, if we look at the workshop as a whole, we see the raw material in all the stages of its production at the same time. The collective labourer, with one set of his many hands armed with one kind of tools, draws the wire, with another set, armed with different tools, he, at the same time, straightens it, with another, he cuts it, with another, points it, and so on. The different detail processes, which were successive in time, have become simultaneous, go on side by side in space. Hence, production of a greater quantum of finished commodities in a given time. [11] This simultaneity, it is true, is due to the general co-operative form of the process as a whole; but Manufacture not only finds the conditions for co-operation ready to hand, it also, to some extent, creates them by the sub-division of handicraft labour. On the other hand, it accomplishes this social organisation of the labour-process only by riveting each labourer to a single fractional detail.

Since the fractional product of each detail labourer is, at the same time, only a particular stage in the development of one and the same finished article, each labourer, or each group of labourers, prepares the raw material for another labourer or group. The result of the labour of the one is the starting-point for the labour of the other. The one workman therefore gives occupation directly to the

other. The labour-time necessary in each partial process, for attaining the desired effect, is learnt by experience; and the mechanism of Manufacture, as a whole, is based on the assumption that a given result will be obtained in a given time. It is only on this assumption that the various supplementary labour-processes can proceed uninterruptedly, simultaneously, and side by side. It is clear that this direct dependence of the operations, and therefore of the labourers, on each other, compels each one of them to spend on his work no more than the necessary time, and thus a continuity, uniformity, regularity, order, [12] and even intensity of labour, of quite a different kind, is begotten than is to be found in an independent handicraft or even in simple co-operation. The rule, that the labour-time expended on a commodity should not exceed that which is socially necessary for its production, appears, in the production of commodities generally, to be established by the mere effect of competition; since, to express ourselves superficially, each single producer is obliged to sell his commodity at its market-price. In Manufacture, on the contrary, the turning out of a given quantum of product in a given time is a technical law of the process of production itself. [13]

Different operations take, however, unequal periods, and yield therefore, in equal times unequal quantities of fractional products. If, therefore, the same labourer has, day after day, to perform the same operation, there must be a different number of labourers for each operation; for instance, in type manufacture, there are four founders and two breakers to one rubber: the founder casts 2,000 type an hour, the breaker breaks up 4,000, and the rubber polishes 8,000. Here we have again the principle of co-operation in its simplest form, the simultaneous employment of many doing the same thing; only now, this principle is the expression of an organic relation. The division of labour, as carried out in Manufacture, not only simplifies and multiplies the qualitatively different parts of the social collective labourer, but also creates a fixed mathematical relation or ratio which regulates the quantitative extent of those parts i.e., the relative number of labourers, or the relative size of the group of labourers, for each detail operation. It develops, along with the qualitative sub-division of the social labour-process, a quantitative rule and proportionality for that process.

When once the most fitting proportion has been experimentally established for the numbers of the detail labourers in the various groups when producing on a given scale, that scale can be extended only by employing a multiple of each particular group. [14] There is this to boot, that the same individual can do certain kinds of work just as well on a large as on a small scale; for instance, the labour of superintendence, the carriage of the fractional product from one stage to the next, &c. The isolation of such functions, their allotment to a particular labourer, does not become advantageous till after an increase in the number of labourers employed; but this increase must affect every group proportionally.

The isolated group of labourers to whom any particular detail function is assigned, is made up of homogeneous elements, and is one of the constituent parts of the total mechanism. In many manufactures, however, the group itself is an organised body of labour, the total mechanism being a repetition or multiplication of these elementary organisms. Take, for instance, the manufacture of glass bottles. It may be resolved into three essentially different stages. First, the preliminary stage, consisting of the preparation of the components of the glass, mixing the sand and lime, &c., and melting them into a fluid mass of glass. [15] Various detail labourers are employed in this first stage, as also in the final one of removing the bottles from the drying furnace, sorting and packing them, &c. In the middle, between these two stages, comes the glass melting proper, the manipulation of the fluid mass. At each mouth of the furnace, there works a group, called "the hole," consisting of one bottlemaker or finisher, one blower, one gatherer, one putter-up or whetter-off, and one taker-in. These five detail workers are so many special organs of a single working organism that acts only as a whole, and therefore can operate only by the direct co-operation of the whole five. The whole body is paralysed if but one of its members be wanting. But a glass furnace has several openings (in England from 4 to 6), each of which contains an earthenware melting-pot full of molten glass, and employs a similar five-membered group of workers. The organisation of each group is based on division of labour, but the bond between the different groups is simple co-operation, which, by using in common one of the means of production, the furnace, causes it to be more economically consumed. Such a furnace, with its 4-6 groups, constitutes a glass house; and a glass manufactory comprises a number of such glass houses, together with the apparatus and workmen requisite for the preparatory and final stages.

Finally, just as Manufacture arises in part from the combination of various handicrafts, so, too, it develops into a combination of various manufactures. The larger English glass manufacturers, for instance, make their own earthenware melting-pots, because, on the quality of these depends, to a great extent, the success or failure of the process. The manufacture of one of the means of production is here united with that of the product. On the other hand, the manufacture of the product may be united with other manufactures, of which that product is the raw material, or with the products of which it is itself subsequently mixed. Thus, we find the manufacture of flint glass combined with that of glass cutting and brass founding; the latter for the metal settings of various articles of glass. The various manufactures so combined form more or less separate departments of a larger manufacture, but are at the same time independent processes, each with its own division of labour. In spite of the many advantages offered by this combination of manufactures, it never grows into a complete technical system on its own foundation. That happens only on its transformation into an industry carried on by machinery.

Early in the manufacturing period, the principle of lessening the necessary labour-time in the production of commodities, [16] was accepted and formulated: and the use of machines, especially for certain simple first processes that have to be conducted on a very large scale, and with the application of great force, sprang up here and there. Thus, at an early period in paper manufacture, the tearing up of the rags was done by paper-mills; and in metal works, the pounding of the ores was effected by stamping mills. [17] The Roman Empire had handed down the elementary form of all machinery in the water-wheel. [18]

The handicraft period bequeathed to us the great inventions of the compass, of gunpowder, of type-printing, and of the automatic clock. But, on the whole, machinery played that subordinate part which Adam Smith assigns to it in comparison with division of labour. [19] The sporadic use of machinery in the 17th century was of the greatest importance, because it supplied the great mathematicians of that time with a practical basis and stimulant to the creation of the science of mechanics.

The collective labourer, formed by the combination of a number of detail labourers, is the machinery specially characteristic of the manufacturing period. The various operations that are performed in turns by the producer of a commodity, and coalesce one with another during the progress of production, lay claim to him in various ways. In one operation he must exert more strength, in another more skill, in another more attention; and the same individual does not possess all these qualities in an equal degree. After Manufacture has once separated, made independent, and isolated the various operations, the labourers are divided, classified, and grouped according to their predominating qualities. If their natural endowments are, on the one hand, the foundation on which the division of labour is built up, on the other hand, Manufacture, once introduced, develops in them new powers that are by nature fitted only for limited and special functions. The collective labourer now possesses, in an equal degree of excellence, all the qualities requisite for production, and expends them in the most economical manner, by exclusively employing all his organs, consisting of particular labourers, or groups of labourers, in performing their special functions. [20] The one-sidedness and the deficiencies of the detail labourer become perfections when he is a part of the collective labourer. [21] The habit of doing only one thing converts him into a never failing instrument, while his connexion with the whole mechanism compels him to work with the regularity of the parts of a machine. [22]

Since the collective labourer has functions, both simple and complex, both high and low, his members, the individual labour-powers, require different degrees of training, and must therefore have different values. Manufacture, therefore, develops a hierarchy of labour-powers, to which there corresponds a scale of wages. If, on the one hand, the individual labourers are appropriated and annexed

for life by a limited function; on the other hand, the various operations of the hierarchy are parcelled out among the labourers according to both their natural and their acquired capabilities. [23] Every process of production, however, requires certain simple manipulations, which every man is capable of doing. They too are now severed from their connexion with the more pregnant moments of activity, and ossified into exclusive functions of specially appointed labourers. Hence, Manufacture begets, in every handicraft that it seizes upon, a class of so-called unskilled labourers, a class which handicraft industry strictly excluded. If it develops a one-sided speciality into a perfection, at the expense of the whole of a man's working capacity, it also begins to make a speciality of the absence of all development. Alongside of the hierarchic gradation there steps the simple separation of the labourers into skilled and unskilled. For the latter, the cost of apprenticeship vanishes; for the former, it diminishes, compared with that of artificers, in consequence of the functions being simplified. In both cases the value of labour-power falls. [24] An exception to this law holds good whenever the decomposition of the labour-process begets new and comprehensive functions, that either had no place at all, or only a very modest one, in handicrafts. The fall in the value of labour-power, caused by the disappearance or diminution of the expenses of apprenticeship, implies a direct increase of surplus-value for the benefit of capital; for everything that shortens the necessary labour-time required for the reproduction of labour-power, extends the domain of surplus-labour.

SECTION 4

DIVISION OF LABOUR IN MANUFACTURE, AND DIVISION OF LABOUR IN SOCIETY

We first considered the origin of Manufacture, then its simple elements, then the detail labourer and his implements, and finally, the totality of the mechanism. We shall now lightly touch upon the relation between the division of labour in manufacture, and the social division of labour, which forms the foundation of all production of commodities.

If we keep labour alone in view, we may designate the separation of social production into its main divisions or *genera* — viz., agriculture, industries, &c., as division of labour in general, and the splitting up of these families into species and sub-species, as division of labour in particular, and the division of labour within the workshop as division of labour in singular or in detail. [25]

Division of labour in a society, and the corresponding tying down of individuals to a particular calling, develops itself, just as does the division of labour in manufacture, from opposite starting-points. Within a family, [26] and after further development within a tribe, there springs up naturally a division of labour, caused by differences of sex and age, a division that is consequently based on a purely physiological

foundation, which division enlarges its materials by the expansion of the community, by the increase of population, and more especially, by the conflicts between different tribes, and the subjugation of one tribe by another. On the other hand, as I have before remarked, the exchange of products springs up at the points where different families, tribes, communities, come in contact; for, in the beginning of civilisation, it is not private individuals but families, tribes, &c., that meet on an independent footing. Different communities find different means of production, and different means of subsistence in their natural environment. Hence, their modes of production, and of living, and their products are different. It is this spontaneously developed difference which, when different communities come in contact, calls forth the mutual exchange of products, and the consequent gradual conversion of those products into commodities. Exchange does not create the differences between the spheres of production, but brings what are already different into relation, and thus converts them into more or less inter-dependent branches of the collective production of an enlarged society. In the latter case, the social division of labour arises from the exchange between spheres of production, that are originally distinct and independent of one another. In the former, where the physiological division of labour is the starting-point, the particular organs of a compact whole grow loose, and break off, principally owing to the exchange of commodities with foreign communities, and then isolate themselves so far, that the sole bond, still connecting the various kinds of work, is the exchange of the products as commodities. In the one case, it is the making dependent what was before independent; in the other case, the making independent what was before dependent.

The foundation of every division of labour that is well developed, and brought about by the exchange of commodities, is the separation between town and country. [27] It may be said, that the whole economic history of society is summed up in the movement of this antithesis. We pass it over, however, for the present.

Just as a certain number of simultaneously employed labourers are the material pre-requisites for division of labour in manufacture, so are the number and density of the population, which here correspond to the agglomeration in one workshop, a necessary condition for the division of labour in society. [28] Nevertheless, this density is more or less relative. A relatively thinly populated country, with well-developed means of communication, has a denser population than a more numerous country, with badly-developed means of communication; and in this sense the Northern States of the American Union, for instance, are more thickly populated than India. [29]

Since the production and the circulation of commodities are the general pre-requisites of the capitalist mode of production, division of labour in manufacture demands, that division of labour in society at large should previously have attained

a certain degree of development. Inversely, the former division reacts upon and develops and multiplies the latter. Simultaneously, with the differentiation of the instruments of labour, the industries that produce these instruments, become more and more differentiated.[30] If the manufacturing system seize upon an industry, which, previously, was carried on in connexion with others, either as a chief or as a subordinate industry, and by one producer, these industries immediately separate their connexion, and become independent. If it seize upon a particular stage in the production of a commodity, the other stages of its production become converted into so many independent industries. It has already been stated, that where the finished article consists merely of a number of parts fitted together, the detail operations may re-establish themselves as genuine and separate handicrafts. In order to carry out more perfectly the division of labour in manufacture, a single branch of production is, according to the varieties of its raw material, or the various forms that one and the same raw material may assume, split up into numerous, and to some extent, entirely new manufactures. Accordingly, in France alone, in the first half of the 18th century, over 100 different kinds of silk stuffs were woven, and, in Avignon, it was law, that "every apprentice should devote himself to only one sort of fabrication, and should not learn the preparation of several kinds of stuff at once." The territorial division of labour, which confines special branches of production to special districts of a country, acquires fresh stimulus from the manufacturing system, which exploits every special advantage. [31] The Colonial system and the opening out of the markets of the world, both of which are included in the general conditions of existence of the manufacturing period, furnish rich material for developing the division of labour in society. It is not the place, here, to go on to show how division of labour seizes upon, not only the economic, but every other sphere of society, and everywhere lays the foundation of that all engrossing system of specialising and sorting men, that development in a man of one single faculty at the expense of all other faculties, which caused A. Ferguson, the master of Adam Smith, to exclaim: "We make a nation of Helots, and have no free citizens." [32]

But, in spite of the numerous analogies and links connecting them, division of labour in the interior of a society, and that in the interior of a workshop, differ not only in degree, but also in kind. The analogy appears most indisputable where there is an invisible bond uniting the various branches of trade. For instance the cattle-breeder produces hides, the tanner makes the hides into leather, and the shoemaker, the leather into boots. Here the thing produced by each of them is but a step towards the final form, which is the product of all their labours combined. There are, besides, all the various industries that supply the cattle-breeder, the tanner, and the shoemaker with the means of production. Now it is quite possible to imagine, with Adam Smith, that the difference between the above social division of labour, and the division in manufacture, is merely subjective, exists merely for

the observer, who, in a manufacture, can see with one glance, all the numerous operations being performed on one spot, while in the instance given above, the spreading out of the work over great areas, and the great number of people employed in each branch of labour, obscure the connexion. [33] But what is it that forms the bond between the independent labours of the cattle-breeder, the tanner, and the shoemaker? It is the fact that their respective products are commodities. What, on the other hand, characterises division of labour in manufactures? The fact that the detail labourer produces no commodities. [34] It is only the common product of all the detail labourers that becomes a commodity. [35] Division of labour in society is brought about by the purchase and sale of the products of different branches of industry, while the connexion between the detail operations in a workshop, is due to the sale of the labour-power of several workmen to one capitalist, who applies it as combined labour-power. The division of labour in the workshop implies concentration of the means of production in the hands of one capitalist; the division of labour in society implies their dispersion among many independent producers of commodities. While within the workshop, the iron law of proportionality subjects definite numbers of workmen to definite functions, in the society outside the workshop, chance and caprice have full play in distributing the producers and their means of production among the various branches of industry. The different spheres of production, it is true, constantly tend to an equilibrium: for, on the one hand, while each producer of a commodity is bound to produce a use-value, to satisfy a particular social want, and while the extent of these wants differs quantitatively, still there exists an inner relation which settles their proportions into a regular system, and that system one of spontaneous growth; and, on the other hand, the law of the value of commodities ultimately determines how much of its disposable working-time society can expend on each particular class of commodities. But this constant tendency to equilibrium, of the various spheres of production, is exercised, only in the shape of a reaction against the constant upsetting of this equilibrium. The *a priori* system on which the division of labour, within the workshop, is regularly carried out, becomes in the division of labour within the society, an *a posteriori*, nature-imposed necessity, controlling the lawless caprice of the producers, and perceptible in the barometrical fluctuations of the market-prices. Division of labour within the workshop implies the undisputed authority of the capitalist over men, that are but parts of a mechanism that belongs to him. The division of labour within the society brings into contact independent commodity-producers, who acknowledge no other authority but that of competition, of the coercion exerted by the pressure of their mutual interests; just as in the animal kingdom, the *bellum omnium contra omnes* more or less preserves the conditions of existence of every species. The same bourgeois mind which praises division of labour in the workshop, life-long annexation of the labourer to a partial operation, and his complete subjection to capital, as being an organisation of labour that increases its productiveness that same bourgeois mind denounces with

equal vigour every conscious attempt to socially control and regulate the process of production, as an inroad upon such sacred things as the rights of property, freedom and unrestricted play for the bent of the individual capitalist. It is very characteristic that the enthusiastic apologists of the factory system have nothing more damning to urge against a general organisation of the labour of society, than that it would turn all society into one immense factory.

If, in a society with capitalist production, anarchy in the social division of labour and despotism in that of the workshop are mutual conditions the one of the other, we find, on the contrary, in those earlier forms of society in which the separation of trades has been spontaneously developed, then crystallised, and finally made permanent by law, on the one hand, a specimen of the organisation of the labour of society, in accordance with an approved and authoritative plan, and on the other, the entire exclusion of division of labour in the workshop, or at all events a mere dwarflike or sporadic and accidental development of the same. [36]

Those small and extremely ancient Indian communities, some of which have continued down to this day, are based on possession in common of the land, on the blending of agriculture and handicrafts, and on an unalterable division of labour, which serves, whenever a new community is started, as a plan and scheme ready cut and dried. Occupying areas of from 100 up to several thousand acres, each forms a compact whole producing all it requires. The chief part of the products is destined for direct use by the community itself, and does not take the form of a commodity. Hence, production here is independent of that division of labour brought about, in Indian society as a whole, by means of the exchange of commodities. It is the surplus alone that becomes a commodity, and a portion of even that, not until it has reached the hands of the State, into whose hands from time immemorial a certain quantity of these products has found its way in the shape of rent in kind. The constitution of these communities varies in different parts of India. In those of the simplest form, the land is tilled in common, and the produce divided among the members. At the same time, spinning and weaving are carried on in each family as subsidiary industries. Side by side with the masses thus occupied with one and the same work, we find the "chief inhabitant," who is judge, police, and tax-gatherer in one; the book-keeper, who keeps the accounts of the tillage and registers everything relating thereto; another official, who prosecutes criminals, protects strangers travelling through and escorts them to the next village; the boundary man, who guards the boundaries against neighbouring communities; the water-overseer, who distributes the water from the common tanks for irrigation; the Brahmin, who conducts the religious services; the schoolmaster, who on the sand teaches the children reading and writing; the calendar-Brahmin, or astrologer, who makes known the lucky or unlucky days for seed-time and harvest, and for every other kind of agricultural work; a smith and a carpenter, who make and repair all the agricultural implements; the potter, who makes all the pottery of

the village; the barber, the washerman, who washes clothes, the silversmith, here and there the poet, who in some communities replaces the silversmith, in others the schoolmaster. This dozen of individuals is maintained at the expense of the whole community. If the population increases, a new community is founded, on the pattern of the old one, on unoccupied land. The whole mechanism discloses a systematic division of labour; but a division like that in manufactures is impossible, since the smith and the carpenter, &c., find an unchanging market, and at the most there occur, according to the sizes of the villages, two or three of each, instead of one. [37] The law that regulates the division of labour in the community acts with the irresistible authority of a law of Nature, at the same time that each individual artificer, the smith, the carpenter, and so on, conducts in his workshop all the operations of his handicraft in the traditional way, but independently, and without recognising any authority over him. The simplicity of the organisation for production in these self-sufficing communities that constantly reproduce themselves in the same form, and when accidentally destroyed, spring up again on the spot and with the same name [38] this simplicity supplies the key to the secret of the unchangeableness of Asiatic societies, an unchangeableness in such striking contrast with the constant dissolution and refounding of Asiatic States, and the never-ceasing changes of dynasty. The structure of the economic elements of society remains untouched by the storm-clouds of the political sky.

The rules of the guilds, as I have said before, by limiting most strictly the number of apprentices and journeymen that a single master could employ, prevented him from becoming a capitalist. Moreover, he could not employ his journeymen in many other handicrafts than the one in which he was a master. The guilds zealously repelled every encroachment by the capital of merchants, the only form of free capital with which they came in contact. A merchant could buy every kind of commodity, but labour as a commodity he could not buy. He existed only on sufferance, as a dealer in the products of the handicrafts. If circumstances called for a further division of labour, the existing guilds split themselves up into varieties, or founded new guilds by the side of the old ones; all this, however, without concentrating various handicrafts in a single workshop. Hence, the guild organisation, however much it may have contributed by separating, isolating, and perfecting the handicrafts, to create the material conditions for the existence of manufacture, excluded division of labour in the workshop. On the whole, the labourer and his means of production remained closely united, like the snail with its shell, and thus there was wanting the principal basis of manufacture, the separation of the labourer from his means of production, and the conversion of these means into capital.

While division of labour in society at large, whether such division be brought about or not by exchange of commodities, is common to economic formations of society

the most diverse, division of labour in the workshop, as practised by manufacture, is a special creation of the capitalist mode of production alone.

SECTION 5
THE CAPITALISTIC CHARACTER OF MANUFACTURE

An increased number of labourers under the control of one capitalist is the natural starting-point, as well of co-operation generally, as of manufacture in particular. But the division of labour in manufacture makes this increase in the number of workmen a technical necessity. The minimum number that any given capitalist is bound to employ is here prescribed by the previously established division of labour. On the other hand, the advantages of further division are obtainable only by adding to the number of workmen, and this can be done only by adding multiples of the various detail groups. But an increase in the variable component of the capital employed necessitates an increase in its constant component, too, in the workshops, implements, &c., and, in particular, in the raw material, the call for which grows quicker than the number of workmen. The quantity of it consumed in a given time, by a given amount of labour, increases in the same ratio as does the productive power of that labour in consequence of its division. Hence, it is a law, based on the very nature of manufacture, that the minimum amount of capital, which is bound to be in the hands of each capitalist, must keep increasing; in other words, that the transformation into capital of the social means of production and subsistence must keep extending. [39]

In manufacture, as well as in simple co-operation, the collective working organism is a form of existence of capital. The mechanism that is made up of numerous individual detail labourers belongs to the capitalist. Hence, the productive power resulting from a combination of labours appears to be the productive power of capital. Manufacture proper not only subjects the previously independent workman to the discipline and command of capital, but, in addition, creates a hierarchic gradation of the workmen themselves. While simple co-operation leaves the mode of working by the individual for the most part unchanged, manufacture thoroughly revolutionises it, and seizes labour-power by its very roots. It converts the labourer into a crippled monstrosity, by forcing his detail dexterity at the expense of a world of productive capabilities and instincts; just as in the States of La Plata they butcher a whole beast for the sake of his hide or his tallow. Not only is the detail work distributed to the different individuals, but the individual himself is made the automatic motor of a fractional operation, [40] and the absurd fable of Menenius Agrippa, which makes man a mere fragment of his own body, becomes realised. [41] If, at first, the workman sells his labour-power to capital, because the material means of producing a commodity fail him, now his very labour-power refuses its services unless it has been sold to capital. Its functions can be exercised only in an environment that exists in the workshop of the capitalist after the sale. By nature

unfitted to make anything independently, the manufacturing labourer develops productive activity as a mere appendage of the capitalist's workshop. [42] As the chosen people bore in their features the sign manual of Jehovah, so division of labour brands the manufacturing workman as the property of capital.

The knowledge, the judgement, and the will, which, though in ever so small a degree, are practised by the independent peasant or handicraftsman, in the same way as the savage makes the whole art of war consist in the exercise of his personal cunning these faculties are now required only for the workshop as a whole. Intelligence in production expands in one direction, because it vanishes in many others. What is lost by the detail labourers, is concentrated in the capital that employs them. [43] It is a result of the division of labour in manufactures, that the labourer is brought face to face with the intellectual potencies of the material process of production, as the property of another, and as a ruling power. This separation begins in simple co-operation, where the capitalist represents to the single workman, the oneness and the will of the associated labour. It is developed in manufacture which cuts down the labourer into a detail labourer. It is completed in modern industry, which makes science a productive force distinct from labour and presses it into the service of capital. [44]

In manufacture, in order to make the collective labourer, and through him capital, rich in social productive power, each labourer must be made poor in individual productive powers. "Ignorance is the mother of industry as well as of superstition. Reflection and fancy are subject to err; but a habit of moving the hand or the foot is independent of either. Manufactures, accordingly, prosper most where the mind is least consulted, and where the workshop may ... be considered as an engine, the parts of which are men." [45] As a matter of fact, some few manufacturers in the middle of the 18th century preferred, for certain operations that were trade secrets, to employ half-idiotic persons. [46]

"The understandings of the greater part of men," says Adam Smith, "are necessarily formed by their ordinary employments. The man whose whole life is spent in performing a few simple operations ... has no occasion to exert his understanding... He generally becomes as stupid and ignorant as it is possible for a human creature to become." After describing the stupidity of the detail labourer he goes on: "The uniformity of his stationary life naturally corrupts the courage of his mind... It corrupts even the activity of his body and renders him incapable of exerting his strength with vigour and perseverance in any other employments than that to which he has been bred. His dexterity at his own particular trade seems in this manner to be acquired at the expense of his intellectual, social, and martial virtues. But in every improved and civilised society, this is the state into which the labouring poor, that is, the great body of the people, must necessarily fall." [47] For preventing the complete deterioration of the great mass of the people by division

of labour, A. Smith recommends education of the people by the State, but prudently, and in homeopathic doses. G. Garnier, his French translator and commentator, who, under the first French Empire, quite naturally developed into a senator, quite as naturally opposes him on this point. Education of the masses, he urges, violates the first law of the division of labour, and with it "our whole social system would be proscribed." "Like all other divisions of labour," he says, "that between hand labour and head labour [48] is more pronounced and decided in proportion as society (he rightly uses this word, for capital, landed property and their State) becomes richer. This division of labour, like every other, is an effect of past, and a cause of future progress... ought the government then to work in opposition to this division of labour, and to hinder its natural course? Ought it to expend a part of the public money in the attempt to confound and blend together two classes of labour, which are striving after division and separation?" [49]

Some crippling of body and mind is inseparable even from division of labour in society as a whole. Since, however, manufacture carries this social separation of branches of labour much further, and also, by its peculiar division, attacks the individual at the very roots of his life, it is the first to afford the materials for, and to give a start to, industrial pathology. [50]

"To subdivide a man is to execute him, if he deserves the sentence, to assassinate him if he does not... The subdivision of labour is the assassination of a people." [51]

Co-operation based on division of labour, in other words, manufacture, commences as a spontaneous formation. So soon as it attains some consistence and extension, it becomes the recognised methodical and systematic form of capitalist production. History shows how the division of labour peculiar to manufacture, strictly so called, acquires the best adapted form at first by experience, as it were behind the backs of the actors, and then, like the guild handicrafts, strives to hold fast that form when once found, and here and there succeeds in keeping it for centuries. Any alteration in this form, except in trivial matters, is solely owing to a revolution in the instruments of labour. Modern manufacture wherever it arises I do not here allude to modern industry based on machinery either finds the *disjecta membra poetae* ready to hand, and only waiting to be collected together, as is the case in the manufacture of clothes in large towns, or it can easily apply the principle of division, simply by exclusively assigning the various operations of a handicraft (such as book-binding) to particular men. In such cases, a week's experience is enough to determine the proportion between the numbers of the hands necessary for the various functions. [52]

By decomposition of handicrafts, by specialisation of the instruments of labour, by the formation of detail labourers, and by grouping and combining the latter into a single mechanism, division of labour in manufacture creates a qualitative gradation, and a quantitative proportion in the social process of production; it consequently

creates a definite organisation of the labour of society, and thereby develops at the same time new productive forces in the society. In its specific capitalist form and under the given conditions, it could take no other form than a capitalistic one manufacture is but a particular method of begetting relative surplus-value, or of augmenting at the expense of the labourer the self-expansion of capital usually called social wealth, "Wealth of Nations," &c. It increases the social productive power of labour, not only for the benefit of the capitalist instead of for that of the labourer, but it does this by crippling the individual labourers. It creates new conditions for the lordship of capital over labour. If, therefore, on the one hand, it presents itself historically as a progress and as a necessary phase in the economic development of society, on the other hand, it is a refined and civilised method of exploitation.

Political Economy, which as an independent science, first sprang into being during the period of manufacture, views the social division of labour only from the standpoint of manufacture, [53] and sees in it only the means of producing more commodities with a given quantity of labour, and, consequently, of cheapening commodities and hurrying on the accumulation of capital. In most striking contrast with this accentuation of quantity and exchange-value, is the attitude of the writers of classical antiquity, who hold exclusively by quality and use-value. [54] In consequence of the separation of the social branches of production, commodities are better made, the various bents and talents of men select a suitable field, [55] and without some restraint no important results can be obtained anywhere. [56] Hence both product and producer are improved by division of labour. If the growth of the quantity produced is occasionally mentioned, this is only done with reference to the greater abundance of use-values. There is not a word alluding to exchange-value or to the cheapening of commodities. This aspect, from the standpoint of use-value alone, is taken as well by Plato, [57] who treats division of labour as the foundation on which the division of society into classes is based, as by Xenophon, [58] who with characteristic bourgeois instinct, approaches more nearly to division of labour within the workshop. Plato's Republic, in so far as division of labour is treated in it, as the formative principle of the State, is merely the Athenian idealisation of the Egyptian system of castes, Egypt having served as the model of an industrial country to many of his contemporaries also, amongst others to Isocrates, [59] and it continued to have this importance to the Greeks of the Roman Empire. [60]

During the manufacturing period proper, i.e., the period during which manufacture is the predominant form taken by capitalist production, many obstacles are opposed to the full development of the peculiar tendencies of manufacture. Although manufacture creates, as we have already seen, a simple separation of the labourers into skilled and unskilled, simultaneously with their hierarchic arrangement in classes, yet the number of the unskilled labourers, owing to the

preponderating influence of the skilled, remains very limited. Although it adapts the detail operations to the various degrees of maturity, strength, and development of the living instruments of labour, thus conducing to exploitation of women and children, yet this tendency as a whole is wrecked on the habits and the resistance of the male labourers. Although the splitting up of handicrafts lowers the cost of forming the workman, and thereby lowers his value, yet for the more difficult detail work, a longer apprenticeship is necessary, and, even where it would be superfluous, is jealously insisted upon by the workmen. In England, for instance, we find the laws of apprenticeship, with their seven years' probation, in full force down to the end of the manufacturing period; and they are not thrown on one side till the advent of Modern Industry. Since handicraft skill is the foundation of manufacture, and since the mechanism of manufacture as a whole possesses no framework, apart from the labourers themselves, capital is constantly compelled to wrestle with the insubordination of the workmen. "By the infirmity of human nature," says friend Ure, "it happens that the more skilful the workman, the more self-willed and intractable he is apt to become, and of course the less fit a component of a mechanical system in which ... he may do great damage to the whole." [61] Hence throughout the whole manufacturing period there runs the complaint of want of discipline among the workmen. [62] And had we not the testimony of contemporary writers, the simple facts, that during the period between the 16th century and the epoch of Modern Industry, capital failed to become the master of the whole disposable working-time of the manufacturing labourers, that manufactures are short-lived, and change their locality from one country to another with the emigrating or immigrating workmen, these facts would speak volumes. "Order must in one way or another be established," exclaims in 1770 the oft-cited author of the "Essay on Trade and Commerce." "Order," re-echoes Dr. Andrew Ure 66 years later, "Order" was wanting in manufacture based on "the scholastic dogma of division of labour," and "Arkwright created order."

At the same time manufacture was unable, either to seize upon the production of society to its full extent, or to revolutionise that production to its very core. It towered up as an economic work of art, on the broad foundation of the town handicrafts, and of the rural domestic industries. At a given stage in its development, the narrow technical basis on which manufacture rested, came into conflict with requirements of production that were created by manufacture itself.

One of its most finished creations was the workshop for the production of the instruments of labour themselves, including especially the complicated mechanical apparatus then already employed. A machine-factory, says Ure, "displayed the division of labour in manifold gradations the file, the drill, the lathe, having each its different workman in the order of skill." (P. 21.) This workshop, the product of the division of labour in manufacture, produced in its turn machines. It is they that sweep away the handicraftsman's work as the regulating principle of social

production. Thus, on the one hand, the technical reason for the life-long annexation of the workman to a detail function is removed. On the other hand, the fetters that this same principle laid on the dominion of capital, fall away.

Footnotes

[1] To give a more modern instance: The silk spinning and weaving of Lyon and Nîmes "est toute patriarcale; elle emploie beaucoup de femmes et d'enfants, mais sans les épuiser ni les corrompre; elle les laisse dans leur belles valises de la Drôme, du Var, de l'Isère, de Vaucluse, pour y élever des vers et dévider leurs cocons; jamais elle n'entre dans une véritable fabrique. Pour être aussi bien observé ... le principe de la division du travail s'y revêt d'un caractère spécial. Il y a bien des dévideuses, des moulineurs, des teinturiers, des encolleurs, puis des tisserands; mais ils ne sont pas réunis dans un même établissement, ne dépendent pas d'un même maître, tous ils sont indépendants" (A. Blanqui: "Cours, d'Econ. Industrielle." Recueilli par A. Blaise. Paris, 1838-39, p. 79.) Since Blanqui wrote this, the various independent labourers have, to some extent, been united in factories. [And since Marx wrote the above, the power-loom has invaded these factories, and is now 1886 rapidly superseding the hand-loom. (*Added in the 4th German edition.* The Krefeld silk industry also has its tale to tell anent this subject.) F. E.]

[2] The more any manufacture of much variety shall be distributed and assigned to different artists, the same must needs be better done and with greater expedition, with less loss of time and labour." ("The Advantages of the East India Trade," Lond., 1720, p. 71.)

[3] "Easy labour is transmitted skill." (Th. Hodgskin, "Popular Political Economy," p. 48.)

[4] "The arts also have ... in Egypt reached the requisite degree of perfection. For it is the only country where artificers may not in any way meddle with the affairs of another class of citizens, but must follow that calling alone which by law is hereditary in their clan.... In other countries it is found that tradesmen divide their attention between too many objects. At one time they try agriculture, at another they take to commerce, at another they busy themselves with two or three occupations at once. In free countries, they mostly frequent the assemblies of the people.... In Egypt, on the contrary, every artificer is severely punished if he meddles with affairs of State, or carries on several trades at once. Thus there is nothing to disturb their application to their calling.... Moreover, since, they inherit from their forefathers numerous rules, they are eager to discover fresh advantages" (Diodorus Siculus: Bibl. Hist. I. 1. c., 74.)

[5] "Historical and descriptive account of Brit. India, &c.," by Hugh Murray and James Wilson, &c., Edinburgh 1832, v. II., p. 449. The Indian loom is upright, i.e., the warp is stretched vertically.

[6] Darwin in his epoch-making work on the origin of species, remarks, with reference to the natural organs of plants and animals: "So long as one and the same organ has different kinds of work to perform, a ground for its changeability may possibly be found in this, that natural selection preserves or suppresses each small variation of form less carefully than if that organ were destined for one special purpose alone. Thus, knives that are adapted to cut all sorts of things, may, on the whole, be of one shape; but an implement destined to be used exclusively in one way must have a different shape for every different use."

[7] In the year 1854 Geneva produced 80,000 watches, which is not one-fifth of the production in the Canton of Neuchâtel. La Chaux-de-Fond alone, which we may look upon as a huge watch manufactory, produces yearly twice as many as Geneva. From 1850-61 Geneva produced 720,000 watches. See "Report from Geneva on the Watch Trade" in "Reports by H. M.'s Secretaries of Embassy and Legation on the Manufactures, Commerce, &c., No. 6, 1863." The want of connexion alone, between the processes into which the production of articles that merely consist of parts fitted together is split up, makes it very difficult to convert such a manufacture into a branch of

modern industry carried on by machinery; but in the case of a watch there are two other impediments in addition, the minuteness and delicacy of its parts, and its character as an article of luxury. Hence their variety, which is such, that in the best London houses scarcely a dozen watches are made alike in the course of a year. The watch manufactory of Messrs. Vacheron & Constantin, in which machinery has been employed with success, produces at the most three or four different varieties of size and form.

[8] In watchmaking, that classical example of heterogeneous manufacture, we may study with great accuracy the above-mentioned differentiation and specialisation of the instruments of labour caused by the sub-division of handicrafts.

[9] "In so close a cohabitation of the people, the carriage must needs be less." ("The Advantages of the East India Trade," p. 106.)

[10] "The isolation of the different stages of manufacture, consequent upon the employment of manual labour, adds immensely to the cost of production, the loss mainly arising from the mere removals from one process to another." ("The Industry of Nations." Lond., 1855, Part II, p. 200.)

[11] "It (the division of labour) produces also an economy of time by separating the work into its different branches, all of which may be carried on into execution at the same moment.... By carrying on all the different processes at once, which an individual must have executed separately, it becomes possible to produce a multitude of pins completely finished in the same time as a single pin might have been either cut or pointed." (Dugald Stewart, l. c., p. 319.)

[12] "The more variety of artists to every manufacture... the greater the order and regularity of every work, the same must needs be done in less time, the labour must be less." ("The Advantages," &c., p. 68.)

[13] Nevertheless, the manufacturing system, in many branches of industry, attains this result but very imperfectly, because it knows not how to control with certainty the general chemical and physical conditions of the process of production.

[14] "When (from the peculiar nature of the produce of each manufactory), the number of processes into which it is most advantageous to divide it is ascertained, as well as the number of individuals to be employed, then all other manufactories which do not employ a direct multiple of this number will produce the article at a greater cost.... Hence arises one of the causes of the great size of manufacturing establishments." (C. Babbage. 'On the Economy of Machinery,' 1st ed. London. 1832. Ch. xxi, pp. 172-73.)

[15] In England, the melting-furnace is distinct from the glass-furnace in which the glass is manipulated. In Belgium, one and the same furnace serves for both processes.

[16] This can be seen from W. Petty, John Bellers, Andrew Yarranton, "The Advantages of the East India Trade," and J. Vanderlint, not to mention others.

[17] Towards the end of the 16th century, mortars and sieves were still used in France for pounding and washing ores.

[18] The whole history of the development of machinery can be traced in the history of the corn mill. The factory in England is still a "mill". In German technological works of the first decade of this century, the term "Mühle" is still found in use, not only for all machinery driven by the forces of Nature, but also for all manufactures where apparatus in the nature of machinery is applied.

[19] As will be seen more in detail in the fourth book of this work, Adam Smith has not established a single new proposition relating to division of labour. What, however, characterises him as the political economist par excellence of the period of Manufacture, is the stress he lays on division of labour. The subordinate part which he assigns to machinery gave occasion in the early days of modern mechanical industry to the polemic of Lauderdale, and, at a later period, to that of Ure. A. Smith also confounds differentiation of the instruments of labour, in which the detail labourers themselves took an active part, with the invention of machinery; in this latter, it is not the

workmen in manufactories, but learned men, handicraftsman, and even peasants (Brindley), who play a part.

[20] "The master manufacturer, by dividing the work to be executed into different processes, each requiring different degrees of skill or of force, can purchase exactly that precise quantity of both which is necessary for each process; whereas, if the whole work were executed by one workman, that person must possess sufficient skill to perform the most difficult, and sufficient strength to execute the most laborious of the operations into which the article is divided." (Ch. Babbage, l. c., ch. xix.)

[21] For instance, abnormal development of some muscles, curvature of bones, &c.

[22] The question put by one of the Inquiry Commissioners, How the young persons are kept steadily to their work, is very correctly answered by Mr. Wm. Marshall, the general manager of a glass manufactory: "They cannot well neglect their work; when they once begin, they must go on; they are just the same as parts of a machine." ("Children's Empl. Comm.," 4th Rep., 1865, p. 247.)

[23] Dr. Ure, in his apotheosis of Modern Mechanical Industry, brings out the peculiar character of manufacture more sharply than previous economists, who had not his polemical interest in the matter, and more sharply even than his contemporaries Babbage, e.g., who, though much his superior as a mathematician and mechanic, treated mechanical industry from the standpoint of manufacture alone. Ure says, "This appropriation ... to each, a workman of appropriate value and cost was naturally assigned, forms the very essence of division of labour." On the other hand, he describes this division as "adaptation of labour to the different talents of men," and lastly, characterises the whole manufacturing system as "a system for the division or gradation of labour," as "the division of labour into degrees of skill," &c. (Ure, l. c., pp. 19-23 passim.)

[24] "Each handicraftsman being ... enabled to perfect himself by practice in one point, became ... a cheaper workman." (Ure, l. c., p. 19.)

[25] "Division of labour proceeds from the separation of professions the most widely different to that division, where several labourers divide between them the preparation of one and the same product, as in manufacture." (Storch: "Cours d'Econ. Pol.," Paris Edn. t. I., p. 173.) "Nous rencontrons chez les peuples parvenus à un certain degré de civilisation trois genres de divisions d'industrie: la première, que nous nommerons générale, amène la distinction des producteurs en agriculteurs, manufacturiers et commerçants, elle se rapporte aux trois principales branches d'industrie nationale; la seconde qu'on pourrait appeler spéciale, est la division de chaque genre d'industrie en espèces ... la troisième division d'industrie, celle enfin qu'on devrait qualifier de division de la besogne ou de travail proprement dit, est celle qui s'établit dans les arts et les métiers séparés ... qui s'établit dans la plupart des manufactures et des ateliers." (Skarbek, l. c., pp. 84, 85.)

[26] *Note to the third edition.* Subsequent very searching study of the primitive condition of man, led the author to the conclusion, that it was not the family that originally developed into the tribe, but that, on the contrary, the tribe was the primitive and spontaneously developed form of human association, on the basis of blood relationship, and that out of the first incipient loosening of the tribal bonds, the many and various forms of the family were afterwards developed. F. E.

[27] Sir James Steuart is the economist who has handled this subject best. How little his book, which appeared ten years before the "Wealth of Nations," is known, even at the present time, may be judged from the fact that the admirers of Malthus do not even know that the first edition of the latter's work on population contains, except in the purely declamatory part, very little but extracts from Steuart, and in a less degree, from Wallace and Townsend.

[28] "There is a certain density of population which is convenient, both for social intercourse, and for that combination of powers by which the produce of labour is increased." (James Mill, l. c., p. 50.) "As the number of labourers increases, the productive power of society augments in the

compound ratio of that increase, multiplied by the effects of the division of labour." (Th. Hodgskin, l. c., pp. 125, 126.)

[29] In consequence of the great demand for cotton after 1861, the production of cotton, in some thickly populated districts of India, was extended at the expense of rice cultivation. In consequence there arose local famines, the defective means of communication not permitting the failure of rice in one district to be compensated by importation from another.

[30] Thus the fabrication of shuttles formed as early as the 17th century, a special branch of industry in Holland.

[31] Whether the woollen manufacture of England is not divided into several parts or branches appropriated to particular places, where they are only or principally manufactured; fine cloths in Somersetshire, coarse in Yorkshire, long ells at Exeter, soies at Sudbury, crapes at Norwich, linseys at Kendal, blankets at Whitney, and so forth." (Berkeley: "The Querist," 1751, § 520.)

[32] A. Ferguson: "History of Civil Society." Edinburgh, 1767; Part iv, sect. ii., p. 285.

[33] In manufacture proper, he says, the division of labour appears to be greater, because "those employed in every different branch of the work can often be collected into the same workhouse, and placed at once under the view of the spectator. In those great manufactures, (!) on the contrary, which are destined to supply the great wants of the great body of the people, every different branch of the work employs so great a number of workmen, that it is impossible to collect them all into the same workhouse ... the division is not near so obvious." (A. Smith: "Wealth of Nations," bk. i, ch. i.) The celebrated passage in the same chapter that begins with the words, "Observe the accommodation of the most common artificer or day-labourer in a civilised and thriving country," &c., and then proceeds to depict what an enormous number and variety of industries contribute to the satisfaction of the wants of an ordinary labourer, is copied almost word for word from B. de Mandeville's Remarks to his "Fable of the Bees, or Private Vices, Publick Benefits." (First ed., without the remarks, 1706; with the remarks, 1714.)

[34] "There is no longer anything which we can call the natural reward of individual labour. Each labourer produces only some part of a whole, and each part, having no value or utility in itself, there is nothing on which the labourer can seize, and say: It is my product, this I will keep to myself." ("Labour Defended against the Claims of Capital." Lond., 1825, p. 25.) The author of this admirable work is the Th. Hodgskin I have already cited.

[35] This distinction between division of labour in society and in manufacture, was practically illustrated to the Yankees. One of the new taxes devised at Washington during the civil war, was the duty of 6% "on all industrial products." Question: What is an industrial product? Answer of the legislature: A thing is produced "when it is made," and it is made when it is ready for sale. Now, for one example out of many. The New York and Philadelphia manufacturers had previously been in the habit of "making" umbrellas with all their belongings. But since an umbrella is a *mixtum compositum* of very heterogeneous parts, by degrees these parts became the products of various separate industries, carried on independently in different places. They entered as separate commodities into the umbrella manufactory, where they were fitted together. The Yankees have given to articles thus fitted together, the name of "assembled articles," a name they deserve, for being an assemblage of taxes. Thus the umbrella "assembles," first, 6% on the price of each of its elements, and a further 6% on its own total price.

[36] "On peut... établir en règle générale, que moins l'autorité préside à la division du travail dans l'intérieur de la société, plus la division du travail se développe dans l'intérieur de l'atelier, et plus elle y est soumise à l'autorité d'un seul. Ainsi l'autorité dans l'atelier et celle dans la société, par rapport à la division du travail, sont en raison inverse l'une de l'autre." (Karl Marx, "Misère," &c., pp. 130-131.)

[37] Lieut.-Col. Mark Wilks: "Historical Sketches of the South of India." Lond., 1810-17, v. I., pp. 118-20. A good description of the various forms of the Indian communities is to be found in George Campbell's "Modern India." Lond., 1852.

[38] "Under this simple form ... the inhabitants of the country have lived from time immemorial. The boundaries of the villages have been but seldom altered; and though the villages themselves have been sometimes injured, and even desolated by war, famine, and disease, the same name, the same limits, the same interests, and even the same families, have continued for ages. The inhabitants give themselves no trouble about the breaking up and division of kingdoms; while the village remains entire, they care not to what power it is transferred, or to what sovereign it devolves; its Internal economy remains unchanged." (Th. Stamford Raffles, late Lieut. Gov. of Java: "The History of Java." Lond., 1817, Vol. I., p. 285.)

[39] "It is not sufficient that the capital" (the writer should have said the necessary means of subsistence and of production) "required for the subdivision of handicrafts should be in readiness in the society: it must also be accumulated in the hands of the employers in sufficiently large quantities to enable them to conduct their operations on a large scale.... The more the division increases, the more does the constant employment of a given number of labourers require a greater outlay of capital in tools, raw material, &c." (Storch: "Cours d'Econ. Polit." Paris Ed., t. I., pp. 250, 251.) "La concentration des instruments de production et la division du travail sont aussi inséparables l'une de l'autre que le sont, dans le régime politique, la concentration des pouvoirs publics et la division des intérêts privés." (Karl Marx, l. c., p. 134.)

[40] Dugald Stewart calls manufacturing labourers "living automats ... employed in the details of the work." (l. c., p. 318.)

[41] In corals, each individual is, in fact, the stomach of the whole group; but it supplies the group with nourishment, instead of, like the Roman patrician, withdrawing it.

[42] "L'ouvrier qui porte dans ses bras tout un métier, peut aller partout exercer son industrie et trouver des moyens de subsister: l'autre (the manufacturing labourer) n'est qu'un accessoire qui, séparé de ses confrères, n'a plus ni capacité, ni indépendance, et qui se trouve forcé d'accepter la loi qu'on juge à propos de lui imposer." (Storch, l. c., Petersb. edit., 1815, t. I., p. 204.)

[43] A. Ferguson, l. c., p. 281: "The former may have gained what the other has lost."

[44] "The man of knowledge and the productive labourer come to be widely divided from each other, and knowledge, instead of remaining the handmaid of labour in the hand of the labourer to increase his productive powers ... has almost everywhere arrayed itself against labour ... systematically deluding and leading them (the labourers) astray in order to render their muscular powers entirely mechanical and obedient." (W. Thompson: "An Inquiry into the Principles of the Distribution of Wealth." London, 1824, p. 274.)

[45] A. Ferguson, l. c., p. 280.

[46] J. D. Tuckett: "A History of the Past and Present State of the Labouring Population." Lond., 1846.

[47] A. Smith: "Wealth of Nations," Bk. v., ch. i, art. ii. Being a pupil of A. Ferguson who showed the disadvantageous effects of division of labour, Adam Smith was perfectly clear on this point. In the introduction to his work, where he *ex professo* praises division of labour, he indicates only in a cursory manner that it is the source of social inequalities. It is not till the 5th Book, on the Revenue of the State, that he reproduces Ferguson. In my "Misère de la Philosophie," I have sufficiently explained the historical connexion between Ferguson, A. Smith, Lemontey, and Say, as regards their criticisms of Division of Labour, and have shown, for the first time, that Division of Labour as practised in manufactures, is a specific form of the capitalist mode of production.

[48] Ferguson had already said, l. c., p. 281: "And thinking itself, in this age of separations, may become a peculiar craft."

[49] G. Garnier, vol. V. of his translation of A. Smith, pp. 4-5.

[50] Ramazzini, professor of practical medicine at Padua, published in 1713 his work "De morbis artificum," which was translated into French 1781, reprinted 1841 in the "Encyclopédie des Sciences Médicales. 7me Dis. Auteurs Classiques." The period of Modern Mechanical Industry has, of course, very much enlarged his catalogue of labour's diseases. See "Hygiène physique et morale de l'ouvrier dans les grandes villes en général et dans la ville de Lyon en particulier. Par le Dr. A. L. Fonteret, Paris, 1858," and "Die Krankheiten, welche verschiedenen Ständen, Altern und Geschlechtern eigenthümlich sind. 6 Vols. Ulm, 1860," and others. In 1854 the Society of Arts appointed a Commission of Inquiry into industrial pathology. The list of documents collected by this commission is to be seen in the catalogue of the "Twickenham Economic Museum." Very important are the official "Reports on Public Health." See also Eduard Reich, M. D. "Ueber die Entartung des Menschen," Erlangen, 1868.

[51] (D. Urquhart: "Familiar Words." Lond., 1855, p. 119.) Hegel held very heretical views on division of labour. In his "Rechtsphilosophie" he says: "By well educated men we understand in the first instance, those who can do everything that others do."

[52] The simple belief in the inventive genius exercised a priori by the individual capitalist in division of labour, exists now-a-days only among German professors, of the stamp of Herr Roscher, who, to recompense the capitalist from whose Jovian head division of labour sprang ready formed, dedicates to him "various wages" (diverse Arbeitslöhne). The more or less extensive application of division of labour depends on length of purse, not on greatness of genius.

[53] The older writers, like Petty and the anonymous author of "Advantages of the East India Trade," bring out the capitalist character of division of labour as applied in manufacture more than A. Smith does.

[54] Amongst the moderns may be excepted a few writers of the 18th century, like Beccaria and James Harris, who with regard to division of labour almost entirely follow the ancients. Thus, Beccaria: "Ciascuno prova coll'esperienza, che applicando la mano e l'ingegno sempre allo stesso genere di opere e di prodotte, egli più facili, più abbondanti e migliori ne traca risultati, di quello che se ciascuno isolatamente le cose tutte a se necessarie soltanto facesse.... Dividendosi in tal maniera per la comune e privata utilità gli uomini in varie classi e condizioni." (Cesare Beccaria: "Elementi di Econ: Pubblica," ed. Custodi, Parte Moderna, t. xi, p. 29.) James Harris, afterwards Earl of Malmesbury, celebrated for the "Diaries" of his embassy at St. Petersburg, says in a note to his "Dialogue Concerning Happiness," Lond., 1741, reprinted afterwards in "Three Treatises, 3 Ed., Lond., 1772: "The whole argument to prove society natural (i.e., by division of employments) ... is taken from the second book of Plato's Republic."

[55] Thus, in the Odyssey xiv., 228, [Greek: "Allos gar t'alloisin aner epiterpetai ergois"] and Archilochus in Sextus Empiricus, [greek: "allos allo ep' ergo kardien iainetai"].

[56] [Greek: "Poll' epistaio ergo, kakos d'epistano panta."] Every Athenian considered himself superior as a producer of commodities to a Spartan; for the latter in time of war had men enough at his disposal but could not command money, as Thucydides makes Pericles say in the speech inciting the Athenians to the Peloponnesian war: [Greek: "somasite etoimoteroi oi autourgoi ton anthropon e kremasi polemein"] (Thuc.: 1, l. c. 41.) Nevertheless, even with regard to material production, [Greek: autarkeia], as opposed to division of labour remained their ideal, [Greek: "par' on gar to, eu, para touton kai to autarkes."] It should be mentioned here that at the date of the fall of the 30 Tyrants there were still not 5,000 Athenians without landed property.

[57] With Plato, division of labour within the community is a development from the multifarious requirements, and the limited capacities of individuals. The main point with him is, that the labourer must adapt himself to the work, not the work to the labourer; which latter is unavoidable, if he carries on several trades at once, thus making one or the other of them subordinate. [Greek: "Ou gar ethelei to prattomenon ten tou prattontos scholen perimenein, all' anagke ton prattonta to prattomeno epakoloothein me en parergou merei. Anagke. Ek de touton

pleio te ekasta gignetai kai kallion kai raon, otan eis en kaia physin kai en kairo scholen ton allon agon, pratte." (Rep. 1. 2. Ed. Baiter, Orelli, &c.) So in Thucydides, l. c., c. 142: "Seafaring is an art like any other, and cannot, as circumstances require, be carried on as a subsidiary occupation; nay, other subsidiary occupations cannot be carried on alongside of this one." If the work, says Plato, has to wait for the labourer, the critical point in the process is missed and the article spoiled, [Greek: "ergou kairon diollytai."] The same Platonic idea is found recurring in the protest of the English bleachers against the clause in the Factory Act that provides fixed mealtimes for all operatives. Their business cannot wait the convenience of the workmen, for "in the various operations of singeing, washing, bleaching, mangling, calendering, and dyeing, none of them can be stopped at a given moment without risk of damage ... to enforce the same dinner hour for all the workpeople might occasionally subject valuable goods to the risk of danger by incomplete operations." Le platonisme où va-t-il se nicher!

[58] Xenophon says, it is not only an honour to receive food from the table of the King of Persia, but such food is much more tasty than other food. "And there is nothing wonderful in this, for as the other arts are brought to special perfection in the great towns, so the royal food is prepared in a special way. For in the small towns the same man makes bedsteads, doors, ploughs, and tables: often, too, he builds houses into the bargain, and is quite content if he finds custom sufficient for his sustenance. It is altogether impossible for a man who does so many things to do them all well. But in the great towns, where each can find many buyers, one trade is sufficient to maintain the man who carries it on. Nay, there is often not even need of one complete trade, but one man makes shoes for men, another for women. Here and there one man gets a living by sewing, another by cutting out shoes; one does nothing but cut out clothes, another nothing but sew the pieces together. It follows necessarily then, that he who does the simplest kind of work, undoubtedly does it better than anyone else. So it is with the art of cooking." (Xen. Cyrop. I. viii., c. 2.) Xenophon here lays stress exclusively upon the excellence to be attained in use-value, although he well knows that the gradations of the division of labour depend on the extent of the market.

[59] He (Busiris) divided them all into special castes ... commanded that the same individuals should always carry on the same trade, for he knew that they who change their occupations become skilled in none; but that those who constantly stick to one occupation bring it to the highest perfection. In truth, we shall also find that in relation to the arts and handicrafts, they have outstripped their rivals more than a master does a bungler; and the contrivances for maintaining the monarchy and the other institutions of their State are so admirable that the most celebrated philosophers who treat of this subject praise the constitution of the Egyptian State above all others. (Isocrates, Busiris, c. 8.)

[60] Cf. Diodorus Siculus.

[61] Ure, l. c., p. 20.

[62] This is more the case in England than in France, and more in France than in Holland.

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